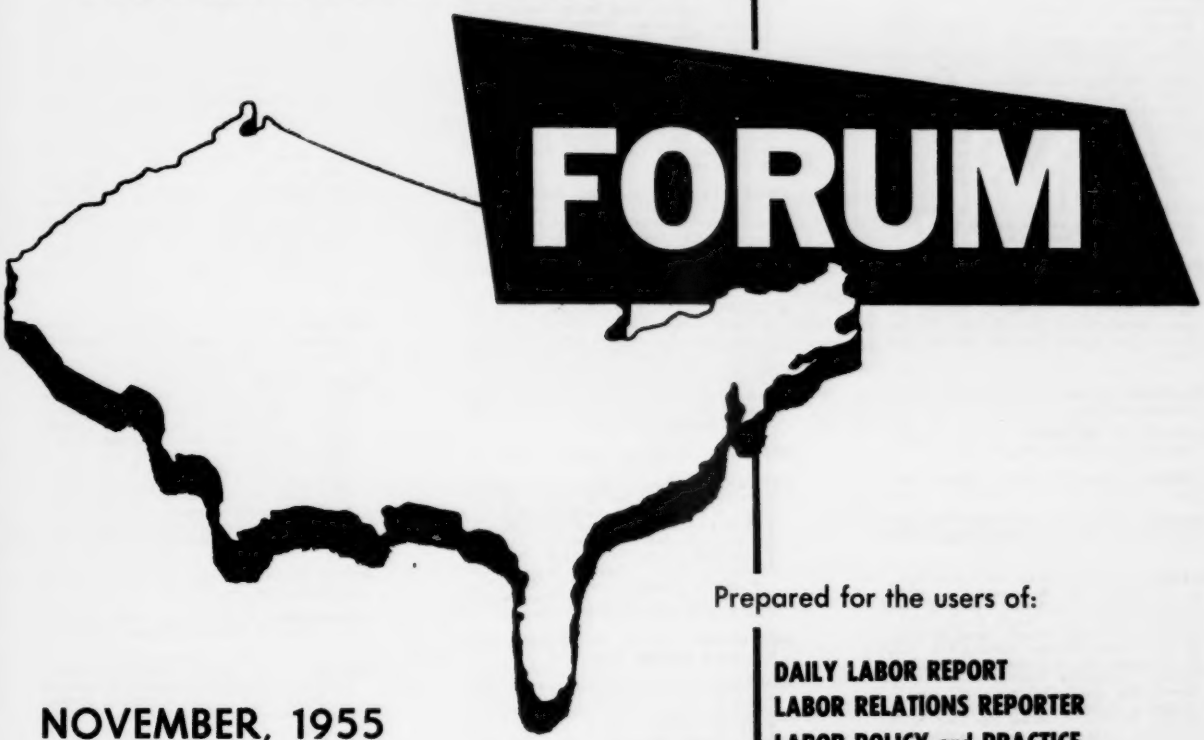
AUTOMATION

Survey No. 33
of
BNA's
PERSONNEL POLICIES



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What Is The Personnel Policies Forum?

The Editors of The Bureau of National Affairs have invited representative personnel and industrial relations executives to become members of the 1955 Panel of the PERSONNEL POLICIES FORUM. These panel members are top personnel officials in all types of companies, large and small, in all branches of industry and all sections of the country.

At regular intervals throughout the year BNA editors ask the members of the Panel to outline their policies and procedures on some important aspect of employment, industrial relations, and personnel problems. From these replies, the editors complete a survey report on the problem, showing prevailing practices, new wrinkles and ideas, and cross-section opinion from those top-ranking executives.

In many cases, the comments, suggestions, and discussions are reproduced in the words of the Panel members themselves. In effect, survey users are sitting around a table with these executives and getting their advice and experience on the major problems in this field facing all companies this year.

Results of each PERSONNEL POLICIES FORUM survey made during 1955 are printed in a special survey report which is sent, as part of the service, to users of these BNA labor reports:

Labor Relations Reporter*—*Labor Policy and Practice*—*Daily Labor Report*—*Retail Labor Report*—*Service Industries Labor Report

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WISCONSIN – *John E. Sutcliffe*, Chain Belt Co.; *A. G. Wolf*, Oscar Mayer & Co.

AUTOMATION

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INTRODUCTION

This survey, fourth in the 1955 Personnel Policies Forum series, summarizes the thinking and experience of 67 executives on the subject of automation.

For purposes of this survey, automation has been defined as "a pronounced acceleration in the rate of mechanization, accompanied (at times) by the introduction of machines that 'think' and regulate themselves."

Some of the effects which Forum members envisage as accompanying automation are: a decrease in the number of employees in individual plants; greater specialization in the work-force; proportionately lower labor costs; more centralized company organization; greater supervisory training needs; higher wage rates; and more widespread application of severance pay.

A majority of the Forum members do not anticipate a reduction in the length of the standard workweek during the next five years. A large minority (two-fifths) do foresee such a reduction, however, in most cases to $37\frac{1}{2}$, 36, or 35 hours a week.

When it comes to "selling" automation to employees, the most effective arguments, personnel executives state, are the need to compete technologically and the increased job opportunities brought about by automation. Specific steps which companies find useful in gaining acceptance for automation among the work-force are (1) installing automatic equipment gradually; (2) retraining employees and relocating them on jobs as good as, or better than, the jobs from which they are displaced; and (3) sharing the gains of technological improvements through wage increases.

(In the more detailed discussion which follows, "smaller" company refers to an individual firm or plant with 1,000 or fewer employees, while "larger" company refers to one with over 1,000 employees.)

EXTENT OF AUTOMATION

Members of the Personnel Policies Forum were asked to predict the spread of automation over the next five years. Their responses show little agreement on how much impact automation will have on industry, although there is general agreement that it will affect most industries to some extent. Executives stress that each industry will have its own approach to automation. In general, the personnel executive believes that his own company will "automate" at least as rapidly as most other firms in the same industry.

Panel members are also agreed on one other forecast, namely, that office operations will undergo a greater degree of automation than manufacturing operations. This largely reflects the fact that in the past automation has been applied to the manufacturing rather than the office end of industry; expectations are that office procedure will now "automate" at a faster pace than manufacturing.

Some idea of the lack of agreement on the pace of automation during the next half decade is found in the comments below by personnel-industrial relations executives.

Expect Limited Automation

We do not expect a pronounced acceleration in the rate of mechanization, as this survey defines automation. We do expect in the food industry and in our company particularly, that as new plants are built and as new machines are added to replace obsolete machines that the new machines will be more automatic and the plants will be more automatic. This is nothing new. This always has been and always will be a part of our competitive industrial scene.--W. E. Harwick, Labor Relations Manager, Campbell Soup Company, Camden, N. J.

* * *

The rate of acceleration during the next five years will depend, in my opinion, on how fast the work force can assimilate the knowledge necessary to operate, and more important, maintain the new devices. I believe this factor will tend to slow down the rate in heavy industry over the next five years. I don't foresee a pushbutton factory during this period.--Industrial Relations Director, smaller eastern company.

Expect Extensive Automation

We will probably see a pronounced acceleration in the rate of mechanization. Nevertheless in our industry, custom products will continue to be important.--Robert I. Mitchell, Director of Personnel and Industrial Engineering, The Duriron Co., Inc., Dayton, Ohio.

* * *

We expect automatic transmitter operation, in radio particularly. Successful operation could lead to similar developments in television.--J. O. Schertler, Industrial Relations Manager, Westinghouse Broadcasting Co., Inc., Washington, D. C.

EFFECTS OF AUTOMATION

Number of Employees in Individual Plants

Expectations of Panel members concerning the effects of automation on the number of employees in individual plants are summarized in the following table:

	Larger Companies	Smaller Companies
Decrease in employment	50 percent	48 percent
Decrease in employment or shorter workweek	5 percent	--
No immediate effect	18 percent	28 percent
Decrease in manufacturing and office employment, increase in maintenance employment	5 percent	--
No immediate effect, increase in long run	2 percent	--
Decrease immediately, increase in long run	10 percent	--
Increase	10 percent	24 percent

The above figures indicate that the majority of personnel-industrial relations executives expect that the workforce in individual plants will be either the same or smaller than at present. Less than one-fourth of the Panel members believe that automation will lead to larger workforces within individual plants.

The close interrelationship between size of workforce and length of workweek is emphasized by one executive who states:

> In the long run, the number of employees within the individual plant will decrease moderately, but work hours will decrease before any reduction in work force becomes a major problem.--Frederick A. Hemmings, Industrial Relations Director, Liberty Products Corp., Farmingdale, N. Y.

Length of Workweek

Even where the introduction of automation results in a need for fewer man-hours of work, a reduction in the size of the workforce is not inevitable; an alternative is a cut in the length of the workweek. Union spokesmen, in fact, have identified a 30- or 32-hour week as the next major bargaining, and they cite automation as the principal justification for this.

Asked whether automation will bring about a reduction in the length of the standard workweek, three-fifths of Panel members replied, "No, not during the next five years." Two-fifths believe there will be a cut. A few of those answering in the affirmative added the qualification that automation will be one of a number of factors leading to a shorter workweek.

Most personnel executives who foresee a shorter workweek in the next five years predict that it will be no shorter than 35 hours. A breakdown of their estimates is as follows:

37½ hours	-- 33 percent
36 hours	-- 26 percent
35 hours	-- 28 percent
32 hours	-- 11 percent
under 32 hours	-- 2 percent

Specialization of the Workforce

Nearly all Panel members are agreed that automation will involve greater specialization of the workforce. Illustrative of this viewpoint is the following comment:

> We will have a greater proportion of machine operators requiring higher skills and greater responsibility.--W. E. Harwick, Labor Relations Manager, Campbell Soup Company, Camden, N. J.

Labor Costs

Automation will bring with it proportionately lower labor costs, in the opinion of a majority of Panel members. That is, the share of the sales dollar going to employees will decline. The breakdown of replies is as follows:

Expect Relative Labor Costs to	Larger Companies	Smaller Companies
Decrease	60 percent	50 percent
Remain the same	23 percent	14 percent
Increase	17 percent	36 percent

At the same time, Panel members believe, average wage rates will increase. The following statement by one executive illustrates this:

> Without automation the working force would be about 1,000 people, with many laborers, press helpers and press operators, these three classifications being the lowest paid of all job classifications in the plant. The earned rate would average $1.89 per hour for all classifications.
>
> With automation, the working force is reduced in size, this reduction taking place in the lower work classifications. Thus personnel costs go down. But more of the higher skilled employees are hired or retained, since more maintenance men are needed to keep the machinery operating. So although the workforce may be reduced to 700 employees, the average earned rate is $2.10 instead of $1.89, due to the higher skills among the workforce.
>
> On the other hand, turnover is less in the smaller workforce, with proportionately lower costs of insurance, pensions, vacations, first aid, and a myriad of other personnel items.--C. Otto Hamer, Industrial Relations Manager, The Clark Grave Vault Co., Columbus, Ohio.

Adjustments in Wage Rates

Not only will average wage rates be raised through an increase in the proportion of skilled employees in the workforce but, a majority of Panel members say, automation will require increases in individual wage rates. Their reasoning is exemplified in the following comment:

> Higher wages will have to be paid to machine operators to recognize the higher skills and greater responsibility of operating complex and expensive machinery.--W. E. Harwick, Labor Relations Manager, Campbell Soup Company, Camden, N. J.

A provocative point made by one executive is that the presence of a union in the plant may actually retard the wage-adjustment process. He says:

> In an organized plant, where the contract is not opened for modifications we offer no change in rates, despite the fact that the equipment requires greater "comprehension." However, when negotiations are subsequently opened, we take the initiative in arriving at more liberal wage levels. Excellent cooperation has been received from AFL groups who have recognized that many senior employees cannot cope with the intricacies of new equipment. They have been happy to supply men of superior qualifications, whom we are equally happy to pay more money. In unorganized plants, we make prompt wage adjustments with changed job duties, which is why they remain unorganized.
>
> Because the "bugs" are not completely removed from some of this new equipment, we sometimes maintain the rates of displaced personnel who have bumped into lower classifications in order to retain their availability in case temporary "manual" operations are necessary.

One of the difficulties surrounding the adjustment of wage rates is outlined by a personnel executive in a larger eastern company in these terms:

> New or changed jobs with changed duties and different skill requirements will call for appropriate new or adjusted rates. The important problem will be that of establishing such rates on the basis of the actual job duties and skill requirements, without permitting them to be unduly influenced by increases in "productivity" toward which the employee may make little or no actual contribution.

Company Organization

Fully one-half of Panel members expect that with the advent of automation, company organization will become more centralized. Another one-third of the Panel expect automation to have no effect on company organization. Here is the exact breakdown:

Expect Company Organization to Be:	Larger Companies	Smaller Companies
More centralized	49 percent	50 percent
Same	33 percent	33 percent
Less Centralized	18 percent	17 percent

Panel members next were asked to predict whether automation will mean more or fewer levels of supervision than now. The responses indicate that executives in larger companies anticipate the same number or fewer levels, while the opinion among executives in smaller companies is varied. The percentages are:

Expect Supervision to Consist of	Larger Companies	Smaller Companies
More levels	7 percent	28 percent
Same number of levels	48 percent	39 percent
Fewer levels	45 percent	33 percent

Supervisory Training Needs

The great majority of personnel executives on the Panel (in 78 percent of larger companies and 86 percent of smaller firms) are convinced that automation will bring with it greater supervisory training needs.

Various aspects of management's increased training needs under automation are brought out in the following remarks by Panel members:

> In those departments where automatic machines can be efficiently utilized, there will be less need for the labor "pusher" type of foreman and more need for the supervisor who can plan and coordinate production through the machinery. Higher skilled employees will require adroit leadership. Training will have to be geared to meet this demand.--W. E. Harwick, Labor Relations Manager, Campbell Soup Company, Camden, N. J.
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> * * *
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> Production under automation will definitely require more skilled supervision. The former practice of promoting hourly rated personnel may need to be abandoned in many instances.--Industrial Relations Director, larger midwestern company.
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> * * *
>
> Management will need to augment school trained technicians with highly specialized on-the-job training requiring better training people.--Frederick A. Hemmings, Industrial Relations Director, Liberty Products Corp., Farmingdale, N. Y.
>
> * * *
>
> Supervisors will require increased technical skill and this must be provided through training; however, automation should not change supervisors' human relations functions.--Employee Relations Director, larger western company.

Dealings With Craft Unions

Will automation bring in its wake added union jurisdictional problems? Panel members are evenly divided on this point; one-half envisage no added problems, while the rest definitely do. Typical of remarks by executives who foresee new problems are the following:

> I think that automation will result in more craftizing of jobs and less of the industrial type of union. I think this has to come because seniority (general overall experience) becomes less of a factor and specialized ability becomes more important in filling jobs.--Industrial Relations Director, smaller eastern company.
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> * * *
>
> I would expect more jurisdictional problems, due to questions arising concerning operation and repair of machines.--C. H. McKennon, Industrial Relations Manager, Neches Butane Products Company, Port Neches, Texas.
>
> * * *
>
> Jurisdictional problems are very probable, particularly since mergers may bring the AFL into industrial union structure.--Joseph H. Jackson, Jr., Industrial Relations Director, The Standard Slag Company, Youngstown, Ohio.
>
> * * *
>
> Perhaps a greater number of jurisdictional problems will result from narrowing and specialization of occupations.--R. J. Greengard, Director of Employee & Labor Relations, Gould-National Batteries, Inc., St. Paul, Minn.
>
> * * *
>
> Areas of automation may well overlap many separately defined jobs, and the unions will have an active interest here.--Frederick A. Hemmings, Industrial Relations Director, Liberty Products Corp., Farmingdale, N. Y.

Displaced Employees

Employees displaced through automation will not constitute a serious problem, most personnel-industrial relations executives believe. They feel that in the typical company, employees who are displaced will be absorbed elsewhere within the company itself. Moreover, a number of executives stress that expanded production accompanying automation will create new employment needs and help resolve the problem. For instance:

> It has not been our experience to date that any employee has lost his job because of mechanization. We feel a very definite responsibility to relocate employees who may be temporarily displaced because of the introduction of machines.--Sherwood C. Chatfield, Industrial Relations Director, Bristol-Myers Company, New York, N. Y.
>
> * * *
>
> The company works out a program many months in advance for the absorption of employees; it is discussed with the unions, and then with each employee involved.--P. F. Middlebrook, Employee Relations Director, Crown Zellerbach Corp., San Francisco, Calif.
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> * * *
>
> Companies will tend to reduce work force by retirement and reduced hiring rather than layoffs, where reduction is necessary.--C. H. McKennon, Industrial Relations Manager, Neches Butane Products Co., Port Neches, Texas.
>
> * * *
>
> If past experience is a good indicator, we will not have a great problem absorbing employees within the company who are displaced because of the introduction of new machinery. The rate of the introduction of new machinery is not so great as compared with the increase in sales as to make this a pronounced problem. Certainly competition and sales fluctuations account for more layoffs than new machinery. As a matter of fact, it has been the introduction of new machinery which makes more and better products which has prevented severe layoffs from loss of business.--W. E. Harwick, Labor Relations Manager, Campbell Soup Company, Camden, N. J.

While the majority of Panel members believe that all displaced employees will be absorbed within their respective companies, a few executives feel that this will not always be possible. Thus:

> Most industries will absorb displaced employees through expanded production; some industries, however, will have to lay off part of the work force and allow them to be absorbed by expanding industries.--John H. Burton, Jr., Assistant Manager, Nicholson File Company, Providence, R. I.

Granting Severance Pay--Personnel executives were asked whether in their opinion, more widespread application of severance pay will accompany automation. Those answering "yes" to this question outnumbered the "nos" by a three-to-one-margin. Typical of majority opinion is the following remark:

> All other efforts failing, severance pay should be a part of the over-all picture to help tide the employee over, pending other employment, and should be calculated as part of the cost of any automation program.

An alternative to severance pay is suggested by one Panel member, who says:

> Since layoffs are an essential part of our economy, some aid should be given to laid off employees. State unemployment compensation is a satisfactory method for providing severance pay. State compensation plans should keep pace with rises in wages in order to provide 50 to 60 percent of earnings for a maximum 26-week period.

Other Effects of Automation

Other concomitants of automation anticipated by personnel executives include increased production and lower prices, higher quality products and higher living standards, and improved working conditions.

A major problem arising from automation is spelled out by one Panel member in these terms:

> The severest problem of automation is the placement of the older worker who can not learn new skills and whose long service with a company creates in his mind a feeling that a company owes him something, even though it provided him with a livelihood over the years. To separate him without due consideration for his years and service would do much to bar widespread acceptance of technological change.--Richard C. Wilcox, Personnel Manager, Forstmann Woolen Company, Passaic, N. J.

EDUCATING EMPLOYEES TO ACCEPT AUTOMATION

Arguments

The strongest points a company can make in seeking to gain acceptance of automation by employees, according to Panel members, are these: (1) the need to compete with other companies technologically and (2) the increased job opportunities which accompany automation. Here are some representative comments by personnel executives:

Need to Compete

> We give an explanation of the "simple economics" which make improvements imperative, by means of individual letters to each employee in the affected plant. A condensed version of such letters is represented by the following: (1) For the company to stay on top (which to the employees means job security), prices must meet widespread customer approval; (2) Prices which produce profits (without which there can be no job security) must necessarily be associated with reasonable costs; (3) Costs are importantly influenced by wages and productivity; (4) When wages are constantly increased without some corresponding increase in individual productivity or efficiency, it inevitably raises costs to a point where profits are wiped out; (5) To

keep profits from being wiped out, the company has supplied better tools in the form of automatic equipment, which enables more to be produced with less human effort and with a lowering of costs. This action is of course not intended as a substitute for individual human application to the job at hand.--Bert W. Morris, Industrial Relations Manager, The Liquid Carbonic Corp., Chicago, Ill.

* * *

To date we have had little difficulty in convincing our people that improved machinery increases our chances of competing with low priced foreign and domestic competitors and that in the long run it is to the advantage of everyone to support this program. We believe that this is now pretty well established.--Personnel Manager, smaller eastern company.

Increased Job Opportunities

Through the medium of Company letters and our Company magazine, we have been "selling" automation to our employees on the basis that it is not only good for our business in particular, but that it will also be good for them because: (1) the use of such equipment requires more skills, and therefore will increase their earning power and their future job opportunities, and (2) the use of such equipment tends to lower the unit cost, reduces the selling cost, and therefore increases the standard of living.--W. P. Juckem, Plant Manager, Eagle Signal Corp., Moline, Ill.

* * *

We are citing specific cases of automation in our plant in the past which have resulted in the long run in the employment of more people.--J. D. McGill, Jr., Personnel Director, North Birmingham Pipe Plant, United States Pipe & Foundry Co., Birmingham, Ala.

Steps

Some of the specific steps which companies take in molding employee thinking on the subject of automation are described by Panel members in the following paragraphs.

Install Automation Gradually

Our procedure is to install equipment gradually. We set it up on the floor, and have methods engineers work with it for a considerable period without operators being assigned. We let the natural curiosity and interest of employees manifest itself, and then we answer questions frankly and completely -- for instance, what is the machine (or other item), what is it for, how does it work, how are tools changed, and so forth.

We have noted general acceptance of new items through this process, as well as a general indication of approval and pride in the Company for being progressive. The end result has been no undue unrest and no unusual problems in rate-setting. The emphasis in all our efforts to date is on the word gradual.--Industrial Relations Manager, larger midwestern company.

Retrain and Relocate Employees

We feel that good practices in the handling of employee problems arising out of automation is the best approach. Support for automation is engendered by such practices as retraining to provide the employee with additional skills to improve himself, and combining jobs to prevent a changed job condition from resulting in a cut in hourly rate.--Robert A. Graney, Assistant General Superintendent, Industrial Relations, Inland Steel Company, East Chicago, Ill.

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We take a great deal of care to see that the experienced employees who are displaced by automation have an opportunity, either before the change-over or at the time of change-over, to obtain a job of similar nature and ability with equal or better pay. If automation creates better jobs, then the employees displaced from their old jobs are given first chance at the better job. If the automation creates lower-paid jobs or less desirable jobs, we attempt to locate the displaced employee elsewhere in the plant on work at least as desirable as his former job.

We also try to instill in the employee a sense of pride in the quantity and quality of his production; if an employee has this sense of pride he appreciates a machine which does a better job than has been done before by another method.--John H. Burton, Jr., Assistant Manager, Nicholson File Company, Providence, R. I.

Share Technological Gains Via Wage Increases

One way of selling change is to share technological gains with employees assigned to the new method or machine, in the form of wage increases.--Personnel Manager, larger eastern company.

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Our union was acquainted with the fact that those employees assuming the more automatic machines could expect higher production, which in turn would be reflected in higher earnings. The union has assured us that we will be able to work toward more automatic machines without difficulty from them.--Lloyd N. Williams, Personnel Director, Magnet Mills, Inc., Clinton, Tenn.

* * *

We set the rates on the job which has been changed by automation so that the employee receives a share of savings made by the automation, so generally the automation has the effect of creating better and higher paid jobs.--John H. Burton, Jr., Assistant Manager, Nicholson File Company, Providence, R. I.

Link Automation to Profit Sharing

We have a profit sharing plan participated in by all employees which provides a very effective channel through which to present and discuss the meaning and impact of automation on employees.--E. S. Bohlin, Personnel Manager, The Welch Grape Juice Company, Inc., Westfield, N. Y.

Media

In contacting employees on the subject of automation, companies make use of the regular communications channels: house organs, reading racks, letters to employees' homes, films, supervisory meetings, employee-management meetings, and the like. The comments below are illustrative:

Articles and pictures are being used in our house organ explaining new equipment. However, this is not being done as a "campaign," but as an integral part of our usual method of informing our employees.--J. L. Budros, Personnel Manager, Convair Division, General Dynamics Corp., Fort Worth, Texas.

* * *

We use the HOBSO ("How Our Business System Operates") program produced through the National Association of Manufacturers in conjunction with such companies as DuPont. We also have a reading rack utilizing appropriate booklets on automation and other material, and a film program showing the benefits of automation as applied in the past.--James J. Reynolds, Vice President of Industrial Relations, American Locomotive Company, Schenectady, N. Y.

* * *

Through foremen-supervisory meetings and departmental meetings, constant communication goes on to educate employees to the desirability of eliminating costly operations by introducing machines.--Sherwood C. Chatfield, Industrial Relations Director, Bristol-Myers Company, New York, N. Y.

* * *

Our current supervisory development program gives much prominence to the application of mechanization, electronic controls and automation in our industry. This is passed along to employees not only by the immediate supervisor in training sessions, but likewise through the medium of management-employee meetings which are conducted on a local basis once a month and on a regional basis annually.--John N. Meisten, Vice President, Railway Express Agency, Inc., New York, N. Y.

* * *

We have held discussions with our union leaders, and have acquainted them with the trend toward automatic machines which will displace some employees.--Lloyd N. Williams, Personnel Director, Magnet Mills, Inc., Clinton, Tenn.

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By means of company publications, orientation classes, and supervisory meetings employees are being educated that automation is not a dirty word and only means "improved operating procedures."--Executive, larger midwestern company.

RECENT PERSONNEL POLICIES FORUM SURVEYS

1. Manpower Planning for the Emergency, March, 1951
* 2. Status of First-Line Supervisors (Compensation, Authority, and Benefits for Foremen), April 1951
3. Is Management Listening? May, 1951
4. Plant Labor-Management Committees, June, 1951
5. Recruiting College Graduates, July, 1951
6. Employees' Financial Problems, August, 1951
7. Christmas and Year-End Personnel Problems, October, 1951
* 8. Foreman Training, January, 1952
* 9. The Personnel Executive (His Title, Functions, Staff, Salary and Status), February, 1952
* 10. White-Collar Office Workers (Their Working Conditions, Benefits and Status), April, 1952
11. Executive Development, May, 1952
12. Building Employee Morale, July, 1952
13. Choosing Better Foremen, August, 1952
* 14. Supervisory Merit-Rating, September, 1952
15. Communications to Employees, November, 1952
16. Fringe Benefits for Supervisors, January, 1953
17. The Personnel-Industrial Relations Function, March, 1953
* 18. Community Relations, August, 1953
19. Personnel Testing, September, 1953
20. The Older Worker, October, 1953
21. Administration of Pension Plans, November, 1953
22. Earnings of First-Line Supervisors, January, 1954
23. Evaluating a Personnel-Industrial Relations Program, February, 1954
24. Employment Stabilization, April, 1954
25. Administration of Health and Welfare Plans, July, 1954
26. Control of Absenteeism, September, 1954
27. Computing Absenteeism Rates, October, 1954
28. Wage-Salary Administration, November, 1954
29. Company Safety Programs, February, 1955
30. Unemployment Compensation Problems, May, 1955
31. Supervisory Development: Part 1, July, 1955
32. Supervisory Development: Part 2, September, 1955

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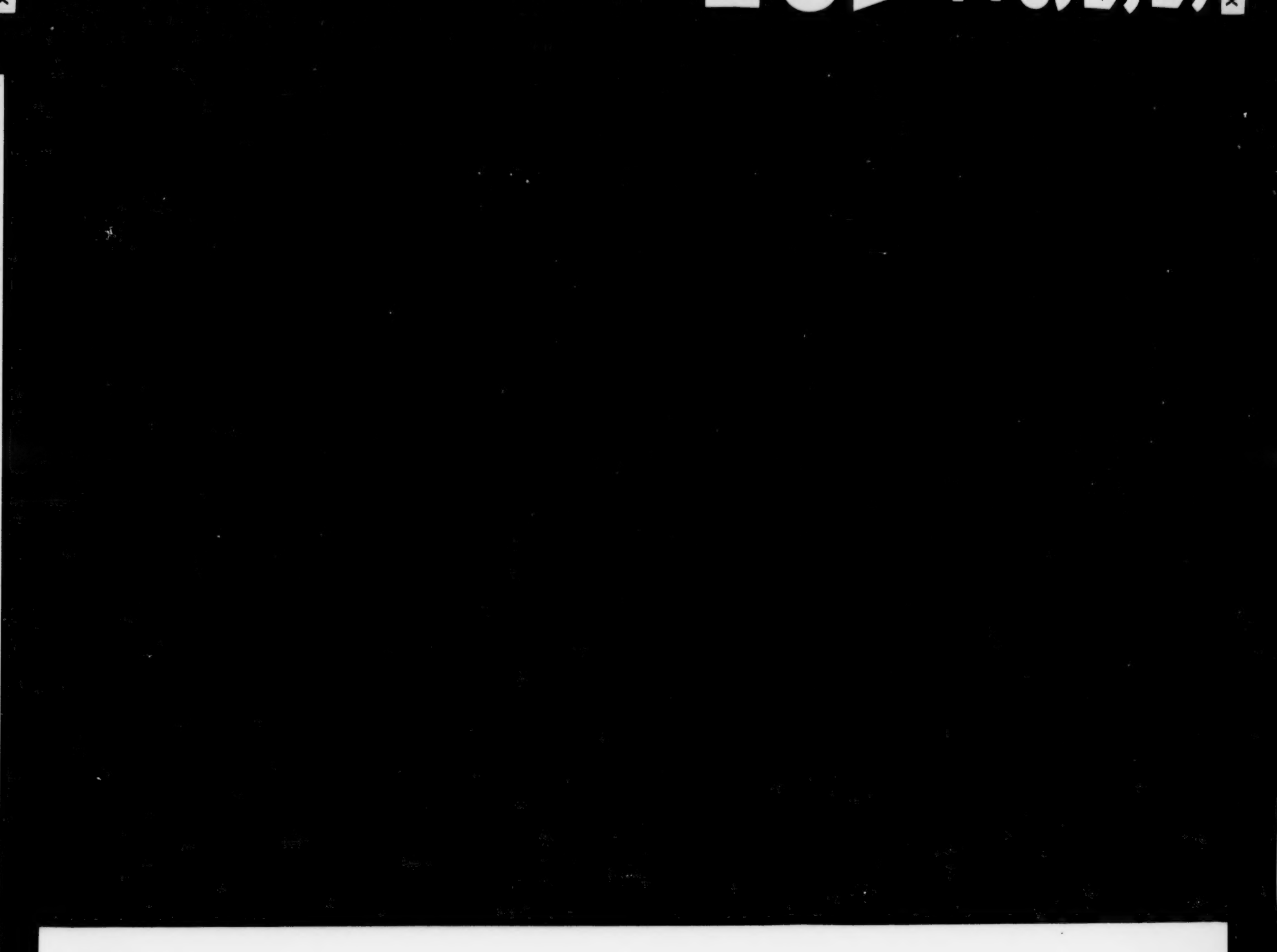
* Out of Print.